CLAIMS

1. A personal hair removal device comprising:

a substrate;

a plurality of blades connected to said substrate, each of said blades comprising at least one cutting edge with a radius of curvature not greater than about 1000 angstroms.

2. A hair removal device according to claim 1 wherein said radius of curvature is not greater than about 500 angstroms.

3. A hair removal device according to claim 1 wherein said radius of curvature is not greater than about 250 angstroms.

4. A hair removal device according to claim 1 wherein said radius of curvature is not greater than about 75 angstroms.

5. A hair removal device according to claim 1 wherein said radius of curvature is not greater than about 50 angstroms.

6. A hair removal device according to claim 1 wherein said radius of curvature is not greater than about 30 angstroms.

7. A hair removal device according to claim 1 wherein said radius of curvature is not greater than about 10 angstroms.

8. A hair removal device according to claim 1 comprising at least about 10 blades.

9. A hair removal device according to claim 1 comprising at least about 50 blades.

10. A hair removal device according to claim 1 comprising at least about 100 blades.

11. A hair removal device according to claim 1 comprising at least about 200 blades.

12. A hair removal device according to claim 1 comprising at least about 500 blades.

13. A hair removal device according to claim 1 comprising at least about 1000 blades.

14. A hair removal device according to claim 1 wherein said blades comprise a cutting depth of not greater than about 1000 microns.

15. A hair removal device according to claim 1 wherein said blades comprise a cutting depth of not greater than about 500 microns.

16. A hair removal device according to claim 1 wherein said blades comprise a cutting depth of not greater than about 250 microns.

17. A hair removal device according to claim 1 wherein said blades comprise a cutting depth of not greater than about 100 microns.

18. A hair removal device according to claim 1 wherein said blades comprise a cutting depth of not greater than about 75 microns.

19. A hair removal device according to claim 1 wherein said blades comprise a cutting depth of not greater than about 50 microns.

20. A hair removal device according to claim 1 wherein said cutting edges are straight.

21. A hair removal device according to claim 1 wherein said cutting edges are serrated.

22. A hair removal device according to claim 1 wherein said cutting edges are curved.

23. A hair removal device according to claim 1 wherein a plurality of said blades are mounted on separate blade supports.

24. A hair removal device according to claim 1 wherein said blades are arranged in ordered columns and rows on said substrate.

25. A hair removal device according to claim 1 wherein said blades are arranged in staggered columns and rows on said substrate.

26. A hair removal device according to claim 1 further comprising at least one guard element comprising a skin engaging surface.

27. A hair removal device according to claim 1 further comprising a plurality of guard elements each comprising at least one skin engaging surface.

28. A hair removal device according to claim 26 wherein said guard element is formed of a resilient material.

29. A hair removal device according to claim 27 wherein at least some of said guard elements are disposed between some of said blades.

30. A hair removal device according to claim 1 wherein at least some of said cutting edges are oriented in different directions.

31. A hair removal device according to claim 1 wherein at least some of said cutting edges are oriented in at least two different directions which are angled at least about 90° to each other.

32. A hair removal device according to claim 1 wherein said substrate is flexible.

33. A hair removal device comprising:

a substrate;

a plurality of blades connected to said substrate, wherein said blades comprise a cutting depth of not greater than about 1000 microns.

34. A hair removal device according to claim 33 wherein said cutting depth is not greater than about 500 microns.

35. A hair removal device according to claim 33 wherein said cutting depth is not greater than about 250 microns.

36. A hair removal device according to claim 33 wherein said cutting depth is not greater than about 100 microns.

37. A hair removal device according to claim 33 wherein said cutting depth is not greater than about 75 microns.

38. A hair removal device according to claim 33 wherein said cutting depth is not greater than about 50 microns.

39. A hair removal device according to claim 33 comprising at least 10 blades.

40. A hair removal device according to claim 33 comprising at least about 50 blades.

41. A hair removal device according to claim 33 comprising at least about 100 blades.

42. A hair removal device according to claim 33 comprising at least about 200 blades.

43. A hair removal device according to claim 33 comprising at least about 500 blades.

44. A hair removal device according to claim 33 comprising at least about 1000 blades.

45. A hair removal device according to claim 33 wherein said blades comprise a radii of curvature not greater than about 1000 angstroms.

46. A hair removal device according to claim 33 wherein said radii of curvature is not greater than about 500 angstroms.

47. A hair removal device according to claim 33 wherein said radii of curvature is not greater than about 250 angstroms.

48. A hair removal device according to claim 33 wherein said radii of curvature is not greater than about 100 angstroms.

49. A hair removal device according to claim 33 wherein said radii of curvature is not greater than about 50 angstroms.

50. A hair removal device according to claim 33 wherein said radii of curvature is not greater than about 30 angstroms.

51. A hair removal device according to claim 33 wherein said radii of curvature is not greater than about 10 angstroms.

52. A hair removal device according to claim 33 wherein said cutting edges are straight.

53. A hair removal device according to claim 33 wherein said cutting edges are serrated.

54. A hair removal device according to claim 33 wherein said cutting edges are curved.

55. A hair removal device according to claim 33 wherein said blades are mounted on separate blade supports.

56. A hair removal device according to claim 33 wherein said blades are arranged in ordered columns and rows on said substrate.

57. A hair removal device according to claim 33 wherein said blades are arranged in staggered columns and rows on said substrate.

58. A hair removal device according to claim 33 further comprising at least one guard element comprising a skin engaging surface.

59. A hair removal device according to claim 33 further comprising a plurality of guard elements each comprising at least one skin engaging surface.

60. A hair removal device according to claim 33 wherein at least some of said guard elements are disposed between some of said blades.

61. A hair removal device according to claim 33 wherein at least some of said cutting edges are oriented in different directions.

62. A hair removal device according to claim 33 wherein said substrate is flexible.

63. A hair removal device according to claim 33 wherein at least some of said cutting edges are oriented in at least two different directions which are angled at least about 90°.

64. A hair removal device comprising:

a substrate;

at least 10 micro-blades connected to said substrate.

65. A hair removal device according to claim 64 comprising at least about 50 of said micro-blades.

66. A hair removal device according to claim 64 comprising at least about 100 of said micro-blades.

67. A hair removal device according to claim 64 comprising at least about 200 of said micro-blades.

68. A hair removal device according to claim 64 comprising at least about 500 of said micro-blades.

69. A hair removal device according to claim 64 comprising at least about 1000 of said micro-blades.

70. A hair removal device according to claim 64 wherein said blades comprise a radii of curvature not greater than about 1000 angstroms.

71. A hair removal device according to claim 64 wherein said radii of curvature is not greater than about 500 angstroms.

72. A hair removal device according to claim 64 wherein said radii of curvature is not greater than about 250 angstroms.

73. A hair removal device according to claim 64 wherein said radii of curvature is not greater than about 100 angstroms.

74. A hair removal device according to claim 64 wherein said radii of curvature is not greater than about 50 angstroms.

75. A hair removal device according to claim 64 wherein said radii of curvature is not greater than about 10 angstroms.

76. A hair removal device according to claim 64 wherein said blades comprise a cutting depth of not greater than about 1000 microns.

77. A hair removal device according to claim 64 wherein said blades comprise a cutting depth of not greater than about 500 microns.

78. A hair removal device according to claim 64 wherein said blades comprise a cutting depth of not greater than about 250 microns.

79. A hair removal device according to claim 64 wherein said blades comprise a cutting depth of not greater than about 100 microns.

80. A hair removal device according to claim 64 wherein said blades comprise a cutting depth of not greater than about 75 microns.

81. A hair removal device according to claim 64 wherein said blades comprise a cutting depth of not greater than about 50 microns.

82. A hair removal device according to claim 64 wherein said cutting edges are straight.

83. A hair removal device according to claim 64 wherein said cutting edges are serrated.

84. A hair removal device according to claim 64 wherein said cutting edges are curved.

85. A hair removal device according to claim 64 wherein said blades are each mounted on separate blade supports.

86. A hair removal device according to claim 64 wherein said blades are arranged in ordered columns and rows on said substrate.

87. A hair removal device according to claim 64 wherein said blades are arranged in staggered columns and rows on said substrate.

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88. A hair removal device according to claim 64 further comprising at least one guard element comprising a skin engaging surface.

89. A hair removal device according to claim 64 further comprising a plurality of guard elements each comprising at least one skin engaging surface.

90. A hair removal device according to claim 64 wherein at least some of said guard elements are disposed between some of said blades.

91. A hair removal device according to claim 64 wherein at least some of said cutting edges are oriented in different directions.

92. A hair removal device according to claim 64 wherein at least some of said cutting edges are oriented in at least two different directions which are angled at least about 90°.

93. A hair removal device according to claim 64 wherein said substrate is flexible.

94. A hair removal device comprising:

a substrate;

at least about 100 micro abrasive elements connected to said substrate.

95. A hair removal device according to claim 94 wherein said substrate is flexible.

96. A method of making a personal hair removal device comprising the steps of:

providing a substrate;

depositing a thin film of at least one etchable material on said subsrate; and

etching a plurality of cutting edges in said deposited film.

97. A method of making a personal hair removal device according to claim 96 wherein said etching step also comprises etching blade supports.

98. A method of making a personal hair removal device according to claim 96 wherein said etching steps also comprises etching skin engaging elements which do not have sharp edges.

99. A method of making a personal hair removal device according to claim 96 further comprising the step of creating a pattern on said deposited film prior to said etching step.

100. A method of making a personal hair removal device according to claim 99 wherein said pattern is created by photolithography.

101. A method of making a personal hair removal device according to claim 96 wherein said step of providing a substrate comprises providing a flexible substrate.

102. A method of making a personal hair removal device according to claim 96 wherein said step of providing a substrate comprises polyimide.

103. A method of making a personal hair removal device according to claim 96 wherein said step of providing a substrate comprises polyetheretherketone (PEEK).

104. A method of making a personal hair removal device according to claim 96 wherein said step of providing a substrate comprises providing a flexible substrate having a thickness of about 0.05 mm to about 2 mm.

105. A method of making a personal hair removal device according to claim 96 wherein said step of providing a substrate comprises providing a flexible substrate having a thickness of about 0.1 mm to about 0.5 mm.

106. A method of making a personal hair removal device according to claim 96 wherein said step of depositing a thin film of etchable material comprises depositing a material selected from the group consisting of tungsten, tantalum nitride, boron nitride, diamond, and combinations thereof.

107. A method of making a personal hair removal device according to claim 96 wherein said depositing step is performed utilizing chemical vapor deposition.

108. A method of making a personal hair removal device according to claim 96 wherein said depositing step is performed utilizing plasma assisted chemical vapor deposition.

109. A method of making a personal hair removal device according to claim 96 wherein said depositing step is performed utilizing electron cycltron resonance deposition.

110. A method of making a personal hair removal device according to claim 96 wherein said depositing step is performed utilizing sputter deposition.

111. A method of making a personal hair removal device according to claim 96 wherein said depositing step is performed utilizing radio frequency assisted deposition.

112. A method of making a personal hair removal device according to claim 96 wherein said etching step comprises sputtering.

113. A method of making a personal hair removal device according to claim 96 wherein said etching step comprises reactive ion etching.

114. A method of making a personal hair removal device according to claim 96 wherein said etching step comprises ion milling.

115. A method of making a personal hair removal device according to claim 96 wherein said etching step comprises wet chemical etching